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ABSTRACT

A discussion of the cognitive development of bilingual children and its implications for early childhood education for this population begins with a review of recent research on bilingual development. It looks at the forms and results of research projects on dual language acquisition processes, the interactive influence of multiple language acquisition, social context as it affects bilingualism and language acquisition, and intelligence and cognition in bilingualism. Experiences with selected bilingual education programs for early childhood are examined. Specific implications of the research for teaching and learning strategies, the likely effects of early childhood bilingual education programs on individuals' linguistic and cognitive development, bilingual education program design, instructional procedures, classroom environment, and English language instruction are discussed. (MSE)

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BILINGUAL DEVELOPMENT AND THE EDUCATION OF BILINGUAL CHILDREN DURING EARLY CHILDHOOD

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INTRODUCTION

The issues surrounding bilingualism are of specific interest to a large bilingual segment (Mexican-American, Chinese, Haitian, Native American, Puerto Rican, Cajun, Vietnamese, etc.) of this nation's population (U. S. Commission of Civil Rights, 1974) and, of general interest to those individuals studying the general phenomenon of language acquisition (McNeil, 1966). Other reviews of bilingualism and second language acquisition have dealt with the definition of bilingualism, linguistic overlap, linguistic "interference," cognitive interaction, and theoretical issues related to each of these areas (See MacNamara 1967; Cummins 1979; and Garcia 1983). The purpose of the present review is to discuss some of these same issues in light of more recent research and applied information specific to bilingual development in young children with special attention to bilingualism in the United States. Therefore, this review should (a) serve as an update from earlier reviews in this area, (b) provide some functional information to those individuals concerned with early childhood bilingualism, and (c) elucidate certain areas which are in need of immediate attention in the context of bilingual instruction in the United States.

Not so surprisingly, as one searches for a comprehensive definition of bilingualism, a continuum of definitional attempts unfold. On one end of this continuum are general definitions such as "the practice of alternately using two languages." At the other end of this continuum are the operational definitions common to the field of experimental psychology ("subjects answered positively to question concerning their use of two languages"; "subjects scored 90% on a standardized test of language proficiency in each language"; etc.). Regardless of the definition adopted for any empirical or theoretical treatment of bilingualism, it should be apparent that "bilinguals" come in a variety of linguistic shapes and forms. Therefore, any definition worthy of consideration must address this built-in linguistic complexity. Thorough definitions of bilingualism must additionally consider cognitive and social domains: the acquisition of language or language coincides with identifiable periods of cognitive development within significant social contexts.

Early childhood bilingualism defined. The term bilingualism here suggests the acquisition of two languages during the first five years of life. This definition includes the following conditions:

(a) Children are able to comprehend and/or produce linguistic aspects of two languages.
(b) Children are exposed "naturally" to the two systems of languages as they are used in the form of social interaction during early childhood. This condition requires a substantive bilingual environment. In many cases this exposure comes from within a nuclear

and extended family network but this need not be the case (visitors, and extended visits to foreign countries are examples of alternative environments).

(c) The simultaneous character of development must be apparent in both languages. This is contrasted with the case of a native speaker of one language, who after mastery of that language, begins on a course of second language acquisition.

It is the preceding combined conditions which define the present population of interest. It is clear from this definition that an attempt is made to include the child's linguistic abilities in conjunction with the social environment during an important "developmental segment" of life.

BILINGUAL DEVELOPMENT

Certainly, one of the most impressive characteristics of children's development is related to language acquisition. It seems remarkable that within the first few years of life, drastic changes in linguistic competence can clearly be identified (Menyuk, 1971). Although the exact variables influencing this development are still not evident, research in this field has been voluminous and theoretically varied (Lenneberg and Lenneberg 1975, DeVilliers and DeVilliers 1978). The main focus of this research has centered on single language acquisition (Brown 1973) although some research has employed comparative linguistic analysis with children who are learning different languages (Bowerman 1975, Braine 1976). Compared to these bodies of literature, a much smaller set of systematic investigations are available regarding children who are acquiring more than one language, simultaneously, during the early part of their lives.

It does seem clear that a child can learn more than one linguistic communicative form in many societies throughout the world and many children do so. Sorenson (1967) describes the acquisition of three to four languages by young children who live in the Northwest Amazon region of South America. In this Brazilian-Columbian border region, the Tukano tribal language serves as the lingua franca, but there continues to exist some 25 clearly distinguishable linguistic groups. In the United States, Skrabanek (1970) reports the continued acquisition and support of both English and Spanish language systems among young preschool children of our Southwest for the last hundred years with no indication that this phenomenon will be disrupted.

Although not apparent from a cursory scanning of linguistic literature, research with bilinguals is not a recent subarea of linguistic or psychological interest. Ronjat (1913) reports

the development of French and German in his own son. Finding little deleterious effects of bilingual development, he attributed such positive outcomes to the separation of the languages. In this particular case, one parent consistently spoke French and the other German. Pavlovitch (1920) also reports the development of two languages, French and Serbian, in his son. Similarly, languages were separated across individuals and the languages developed simultaneously with minimal confusion. Geissler (1938) reports, anecdotally, that as a teacher of foreign languages he had observed young children acquire up to four languages simultaneously without apparent difficulty. However, Smith (1935), in a study of missionary families who spoke English and Chinese, reports difficulty during simultaneous acquisition. This difficulty was most apparent in the language mixing character of some children's speech.

One of the first systematic investigations of bilingual acquisition in young children was reported by Leopold (1939, 1947, 1949a, 1949b). This author set out to study the simultaneous acquisition of English and German in his own chapter. These initial descriptive reports indicate that as the subject was exposed to both languages during infancy, she seemed to weld both languages into one system during initial language production periods. For instance, early language forms were characterized by free mixing. Language production during later periods seem to indicate that the use of English and German grammatical forms developed independently.

More recent studies have systematically addressed several issues relevant to bilingual acquisition. Carrow (1971, 1972) has restricted her study to the receptive domain of young bilingual Mexican-American children in the Southwest. Children (ages 3 years, 10 months to 6 years, 9 months) from bilingual Spanish-English home environments were administered the Auditory Test for Language Comprehension. This test consists of a series of pictures representing referential categories that can be signaled by words, morphological constructions, grammatical categories and syntactic structures. These include verbs, adjectives, adverbs, nouns, pronouns, morphological endings, prepositions, interrogatives and syntactic complexity in both languages. A comparison of English and Spanish comprehension on this task for bilinguals revealed (Carrow 1971): (1) linguistically, children very heterogeneous; some scored better in one language than another, others were equal in both; (2) a greater proportion of children scored higher in English than in Spanish; (3) older children scored higher on these measures in both languages. (This was the case even though Spanish was not used as a medium of instruction for children who were in educational programs).

In a cross-sectional comparison of English comprehension among monolingual English and bilingual, Spanish-English children (ages 3 years, 19 months to 6 years, 9 months), Carrow (1972) reports a positive developmental trend for both Spanish and

English in bilingual children. Additionally, bilingual children tended to score lower than monolingual children on English measures during ages 3 years, 10 months to 5 years, 9 months; but for the final age comparison group (6 years, 9 months), bilingual and monolingual did not differ significantly on these same English measures. These combined results seem to indicate that at the receptive level, Spanish-English bilingual children were: (a) progressing (increasing their competence) in both Spanish and English; (b) heterogeneous as a group, most favoring one language (typically English) over another; and, (c) "lagging" behind monolingual children in their acquisition of English at an early age (4-5), but eventually "catching up" at a later age (6-7). Since these studies were only at the receptive level, used specific "test" procedures, and restricted the population of study to one regional bilingual Hispanic population (Texas Mexican-Americans), there exist serious constraints to the conclusion reported above. But, they do offer some initial empirical information relevant to the study of early childhood bilingual development.

With respect to expressive development, Padilla and Liedbman (1975) report the longitudinal analysis of Spanish-English acquisition in 2, 3-year old bilingual children. These researchers followed the model of Brown (1973) in recording linguistic interactions of children over a five month period. By an analysis of several dependent linguistic variables (phonological, grammatical, syntactic and semantic characteristics) over this time period, they observed gains in both language though several English forms were in evidence while similar Spanish forms were not. They also report the differentiation of linguistic systems at phonological, vocabulary and syntactic levels. They conclude:

> the appropriate use of both languages even in mixed utterances was evident; that is, correct word order was preserved. For example, there were no occurrences of "raining esta" or "a es baby," but there was evidence for such utterances as "esta raining" and "es a baby." There was also an absence of the redundants of unnecessary words which might tend to confuse meaning. (page 51)

Garcia (1983) reports developmental data related to the acquisition of Spanish and English for Spanish-English bilingual preschoolers (3-4 years old) and the acquisition of English for a group of matched English-only speakers. The results of that study can be summarized as follows: (a) acquisition of both Spanish and English was evident at complex morphological (grammatical) and syntactic levels for Spanish/English four-year-old

children; (b) for the bilingual children studied, English was more advanced based on the quantity and quality of obtained morphological and syntactic instances of language production; and (c) there was no quantitative or qualitative difference between Spanish/English bilingual children and matched English-only controls on English language production.

Huerta (1977) has provided a report of a longitudinal analysis for a Spanish/English, bilingual, two-year-old child. She reports a similar pattern of continuous Spanish/English development, although identifiable stages appeared in which one language forged ahead of the other. Moreover, she reports the significant occurrence of mixed language utterances which made use of both Spanish and English lexicon as well as Spanish and English morphology. In all such cases, these mixed linguistic utterances were well formed and communicative. Garcia, Maez and Gonzales (1981), in a national study of bilingual children four, five, and six years of age, found regional differences in the relative occurrence of switched language utterences. That is, bilingual Spanish/English children from Texas, Arizona, Colorado and New Mexico, showed higher (15-20%) incidences of language-switched utterances than children from California, Illinois, New York or Florida, especially at prekindergarten levels. These findings suggest that some children may very well develop an "interlanguage" in addition to the acquisition of two independent language systems later in development.

The above "developmental" findings can be capsulized succinctly but not without acknowledging their tentative nature:

1. The acquisition of more than one language during early childhood is a documented phenomenon.
2. The acquisition of two languages can be parallel, but need not be. That is, the qualitative character of one language may lag behind, surge ahead, or develop equally with the other language.
3. The acquisition of two languages may very well result in an interlanguage, incorporating the aspects (lexicon, morphology and syntax) of both languages.
4. The acquisition of two languages need not hamper, developmentally, the acquisition of either language.

Of course, these conclusions are very broad in character. The specific nature of bilingaul development and its casual links to environmental variables remains unavailable.

Beyond the basic developmental research discussed above, a second popular form of research has considered the interactive influence of multiple language acquisition. That is, does

learning more than one language influence the rate and/or quality of acquisition of each language? When referring to the interactive phenomenon between languages of the bilingual, the terms "linguistic transfer" or "interference" are often used. This latter form has gained multiple meanings as is shown by its gain or various modifiers, "linguistic interference," "psychological interference," and "educational interference" (Saville and Troike, 1971). Experimental studies of specific instances of "transfer" or lack of it are available with bilingual children. For instance, Evans (1974) reports the comparison of word-pair discriminations and word initiations in Spanish and English for monolingual English and bilingual Spanish/English children.

Elementary school children were asked to discriminate between words containing English phonemes /b/ and /y/ which are clearly separate in English but not so clearly separate in Spanish. Additionally, children were requested to initiate a series of words in each language which were also considered "difficult." Bilinguals did not differ from monolinguals on any of the English tasks. But as expected, bilinguals scored significantly higher than monolinguals on all Spanish tasks. Garcia and Trujillo (1979) report a similar finding when they compared bilingual (Spanish/English) and monolingual (English) three, four, five, six, and seven-year olds on high error risk English phonemes that adult Spanish speakers mispronounce. In addition, these children also were asked to imitate simple to complex Spanish and English syntactic forms (sentences containing plural, possessive, and adjective morphemes). Bilinguals did not differ from monolinguals on English imitation tasks where both groups scored near 100% correct, but they did differ significantly, and made fewer errors than English speakers on Spanish tasks. This was true across all age levels. These studies suggest that negative transfer at the phonological level in young bilingual children is nonexistent.

In this same study (Garcia and Trujillo, 1979), however, the imitation of complex Spanish sentences which involved adjective placement were not imitated correctly by the bilingual subjects. Complex English sentences of this type presented no significant problem for either bilingual or English-only children. Recall that adjective placement in Spanish ("pato azul") generally differs from adjective placement in English ("blue duck"). Therefore, it is likely that transfer (both positively and/or negatively) increases with the increase in syntactic complexity and as differences in syntactic structure across the language of the bilingual are involved. An earlier report (Garcia), 1977) has indicated the existence of transfer in the form of language substitution during the acquisition of prepositional labels in the "weak" language of the bilingual. In this study, bilingual, Spanish/English

children whose performance on the labeling of prepositional concepts differed across languages served as subjects. That is, subjects could provide the correct prepositional label in one language (first language) but not the other (second language). Language substitution occurred when subjects were taught to label prepositions in the second language. Therefore, transfer may very well take the form of a "failure to discriminate" the language deemed socially appropriate. Such transfer effects are more sociolinguistic in character rather than linguistic.

On the other hand, Dulay and Burt (1972, 1973) report finding the linguistic errors in English which could be attributed to children's first language even when the child's first language varied from Oriental to a Western European derivative. They have concluded that identifiable English linguistic errors were much like those of young children acquiring English as a first and only language.

The studies in the field of linguistic transfer with young bilingual children can be used to support one or more of the following contradictory conclusions concerning the acquisition of two languages during early childhood:

1. A linguistic transfer phenomenon is evident in which the specific structure of the "dominant" language influences the developmental quality of the less "dominant" language.
2. A linguistic transfer phenomenon is evident in which the structures of the two independent languages influence the developmental quality of both languages, likely producing a third identifiable "interlanguage."
3. The developmental character of the bilingual is not significantly influenced by the simultaneous linguistic development of two languages; the developmental character of each language is similar to that of a native speaker of either language.

Given the contradictory nature of the evidence available at this time, it is safest to conclude that the specific character of transfer between the languages of the bilingual continues to be an area of significant research interest and controversy. It would appear inappropriate at this time to make any other conclusion.

SOCIAL CONTEXT

As Reigel (1968) suggests, any chronological record of the child's linguistic output coupled with linguistic input information would allow us important correlational analysis of language development. Although this extensive information remains unavailable, some

systematic semblance of this type of data is becoming available for monolingual English children (Brown and Fraser, 1963; Schacter, Krishner, Klips, Friederricks, Sander, 1974). Unfortunately, little information of this calibre is available for young bilingual children.

Although this absence of empirical data is crippling, some cautious notions of bilingual input seem justifiable. If one considers the eventual bilingual character of the child, it seems appropriate to suggest that some percentage of the child's linguistic information is in one language and some other percentage is in a second language. One might tie the acquisition of either language to the general theoretical notion of "degree of linguistic input." Mathematically, the extent of bilingualism would be directly related to the proportion of language information made available.

This simple relationship must be qualified because of several theoretical and empirical considerations. Edelman (1969) reports the differential use of Spanish and English vocabulary in Puerto Rico children on a word-naming task as a function of the different contexts (school, home, neighborhood, church) the children were asked to describe. Skrabanek (1970) in a study of Spanish maintenance among Mexican Americans, found that the use of Spanish differed as a function of the age of the speaker. Older subjects spoke more often in Spanish although both young and old alike used Spanish a substantial proportion of the time. Kuo (1974) reports the differential use of language by Chinese-American children was related to age and other socialization variables.

Language is learned within a child's culture, and children coming from different cultures will use language in ways that reflect their different cultures. This particularly is the case for bilingual children, children where social functioning takes place in two languages. For example, a child from a Mexican American or Native American Family will not necessarily talk about the same things, or use language to accomplish the same functions as a child from an urban Black or Anglo family. The key term here is "language use." It is important that we distinguish between the <u>form</u> of a child's language and the <u>function</u> served by that language. Language form (phonology, syntax, grammar, and vocabulary) has been the traditional focus of language intervention for children. More than a decade ago, William Labov (1970) identified this duality in his own research when he identified two aspects of the problem:

1. Structural conflicts of standard and nonstandard English: interference with learning ability stemming from a mismatch of linguistic structures.

2. Functional conflicts of standard and nonstandard English: interference with the desire to learn standard English stemming from a mismatch in the functions which standard and nonstandard English perform in a given culture. (p. 6)

Labov's research focused on both of these issues, and he identified numerous functional conflicts between the nonstandard English of the urban black children he studied and the standard English demanded by the school. Duran (1981) and Garcia (1983) as well as others provide a wealth of similar information for Spanish/English bilingual populations. Unfortunately, curriculum developers and language testers are often slow to take advantage of these results. For example, Labov found that many of the children he studied were unwilling to answer questions which the questionner obviously knew the answer to. An adult, holding up a picture of a helicopter and saying to a child "What's this?" is likely to get either no answer or "I don't know." It is impossible to say in this situation whether the child really doesn't know, or whether the child is reasoning "That question is too easy. Anybody knows what that is. There must be some catch to this. I will protect myself by not answering until I know more about what's going on here." This protection-strategy is frequently employed by urban black children, and yet their silences or "don't know" answers are interpreted as evidence of cognitive or language delay. Geneshi (1981) in a study of bilingual Mexican American children in California, gives further weight to Labov's example. She points out that the children in her study switched languages (from English to Spanish or vice-versa) depending on their own impression of the listener's "strongest" language. She reports that what seemed at first glance a disturbed language switching situation, became a systematic interactional discourse strategy which maximized communication.

Therefore, this willingness to use more than one language in performance situations can cause real problems in traditional testing situations in which it is clear that there is one right language, and the tester knows what it is.

Functional Language. Functionalist approaches to language acquisition theory are not a recent development. In 1970, Casden wrote:

> The study of the acquisition of language has been based on the assumption that what had to be described and

> explained was the acquisition of a repertoire of responses (in the terminology of behaviorism) or the acquisition of a finite set of rules for constructing utterances (in the terminology of developmental psycholinguistics). On this assumption, the school language problems of lower class children can have two explanations: either they have acquired less language than middle class children, or they have acquired a different language. The less-language explanation has been given various names - cultural deprivation, deficit hypothesis, vacuum ideology - all with the connotation of a nonverbal child somehow emptier of language than his more socially-fortunate age mates. The different-language explanation is forcefully argued by William Stewart and Joan Baratz. It states that all children acquire language but that many children - especially lower-class black children - acquire a dialect of English so different in structural (grammatical) features that communication in school, both oral and written, is seriously impaired by that fact alone. ...Both the less-language and different language views of child language are inadequate on two counts. First, they speak only of patterns of structural forms and ignore patterns of use in actual speech events. Second, they speak as if the child learns only one way to speak, which is reflected in the same fashion and to the same extent at all times. On both theoretical and practical grounds, we can no longer accept such limitations. (p. 81,83)

What Cazden is calling for is a functional view of language - a focus on how the child brings language to bear to meet the demands of the situations in which language is used.

The key to this approach is the notion that grammatical structure cannot be understood outside the context in which language is used (Bloom, 1970). The functionalist approach to language holds that grammar is a secondary or derived system, related to the constraints of the communication task. As Bates (1979) indicates, "the child's acquisition of grammer is guided, not by abstract categories, but by the pragmatic and semantic structure of communications interacting with the performance constraint of the speech channel." The child's task is one of mapping a diverse set of semantic and pragmatic functions onto a set of grammatical forms. A functional approach suggests children concentrate first on what they can do with language. Cultural diversity in language becomes increasingly significant. In other words, a functional approach makes us interested in what Hymes (1967) calls the child's "communicative competence" -- that is the child's knowledge of rules of speaking meaningfully. If we wish to assist in developing a child's knowledge of con-

structs beyond subject-verb agreement and past-tense verbs, that is if we want to know whether children can use language functionally in the environment, then we need a non-traditional language view. Moreover, even if we wish to identify and implement instructional procedures related to "linguistic competence", our methods must inherently link to communicative functions.

The study of language in context is known as pragmatics. As Bates (1976) indicates "all of language is pragmatic to begin with. Children choose their productions to fit contexts and procure knowledge of communications onto those contexts in such a way that the two are inseparable." Bates' approach demands that we think of context as involving information about the speaker, the listener, the speaker's goal in using a particular utterance, the information assumed to be true in a particular speech context, and even the rules governing discourse of conversation.

Useful accounts of early childhood bilingualism must, therefore, take into consideration more than the child's linguistic ability. They must consider the child's surrounding environment. The environmental context will determine.

1. the specific linguistic and meta-linguistic information important for the development of each language;
2. the specific social language use rules for each language;
3. the specific linguistic and sociolinguistic rules governing codeswitching;
4. prestige of the language, and, therefore, the "motivation" to learn-maintain, or ignore-dissipate language differentially.

This form of analysis is one of the most needed within the bilingual arena. It is also one which holds much promise in providing information drawn directly from bilingual acquisition but of direct importance to the understanding of language acquisition in general. For as McNeil (1966) has previously indicated, differential development of specific language features in the course of bilingual acquisition may very well signal important relationships between that differential development and socio-cultural variables.

INTELLIGENCE, COGNITION, AND BILINGUALISM

Social input and linguistic output have been discussed as they are related to bilingual acquisition in early childhood. Left

unattended, however, have been the cognitive processes related to this same issue. Based on information relating early childhood bilingualism to decreased performance on standardized tests of intelligence, a causal statement linking bilingualism to depressed intelligence is tempting. Although this pervasive negative relationship characterizes much early work (Darcy 1953), the methodological problem of studies investigating this type of relationship are serious and any conclusions concerning bilingualism and intellectual functioning (as measured by standardized individual or group intelligence tests) are extremely tentative in nature (Darcy 1963).

With the general shift away from standardized measures of intelligence, the information processing of bilingual children as it is related to specific areas of cognitive development has received attention. Leopold (1939) in one of the first investigations of bilingual acquisition with young children reported a general cognitive plasticity for his young bilingual subject. He suggested that linguistic flexibility (in the form of bilingualism) generalized to non-linguistic, cognitive tasks. Peal and Lambert (1962) in a summarization of their work with French/English bilinguals and English monolinguals suggested that the intellectual experience of acquiring two languages contributed to an advantageous mental flexibility, superior concept formation, and a generally diversified set of mental abilities. Padilla (1977) reasoned that bilinguals must be cognitively advanced because they are able to process information, and produce allied information in another language. (I refer here to the ability of a child to understand a problem statement in one language, solve that problem, and produce the answer in a second language). For example, Keats and Keats (1974) report a study which German/English bilinguals who did not exemplify weight conservation were trained to conserve in one of the two languages. Results from English and German post-tests indicated that the concept was acquired in both languages. This suggests the possible increased flexibility of bilinguals during conceptual acquisition.

Feldman and Shen (1971), Ianco-Worall (1972), Carringer (1974), and Cummins and Gulatson (1974) have begun to provide relevant evidence. Feldman and Shen (1971) report differential responding between Spanish/English bilinguals and English monolinguals across three separate cognitive tasks. The first, an object constancy task, required subjects to identify an object (a cup) after its shape had been altered (smashed) in their presence. The second, a nonsense labeling and switched-name task, required subjects to label familiar items with either nonsense words ("wug") or to switch

the names of these familiar items (label a cup a "glass" and vice versa). The third, an associative sentence task, required subjects to use familiar, nonsense and switched labels (of the second task) in a sentence describing a relation between the labeled items ("the wug is on the plate"). Results indicated significantly increased cognitive flexibility for bilinguals. Ianco-Worall (1972) compared matched bilinguals (Afrikaans/English) and monolingual (either Afrikaans or English) on separation of word-sound, word-meaning tasks. Comparison of scores on these tasks indicated that bilinguals concentrated more on attaching meaning to words than on sounds.

In an attempt to identify more specifically the relationship between cognition and bilingualism, Cummins (1979, 1981) has proposed an interactive theoretical proposition: that children who achieve "balanced proficiency" in two languages are advantaged cognitively in comparison with monolingual children, and that children who do not achieve balanced proficiency in two languages (but who are immersed in a bilingual environment) are cognitively disadvantaged in comparison to monolingual and balanced proficient bilinguals. This formulation presents most directly the shift away from a disadvantaged perspective (Darcy, 1953, 1963) to an advantaged perspective while at the same time continuing to consider the potential negative influence of bilingualism (unbalanced). This interactionist position attempts to account for the success of Canadian-French immersion bilingual programs for English-speaking children and the failure of English immersion programs for Spanish-speaking children in the United States.

Garcia (1983) takes issue with this interactionist conceptualization on several grounds. First, the data to support the interactionist position are primarily Canadian. Secondly, these same data have prevously been criticized on a more severe subject selection criterion. It is likely that only high achieving and highly intelligent children were selected for inclusion into bilingual education groupings. Therefore, cognitive advantages already existed prior to bilingual "instruction" and most likely contribute to the success of bilingual development, not vice versa. Moreover, successful subjects came from either majority, middle or high socio-economic strata where education was a premium and learning a second language was openly rewarded. Learning a second language under such conditions is quite different from one dictated by economic depression as well as social and psychological repression of a minority language and culture. In sum, it is not necessary to account for differences in bilingual (balanced or not) and monolingual's cognitive performance in the basis of a cognitively advantage/disadvantaged conceptualization. Instead, it remains possible that individual differences in intellectual functioning, combined with the support/non-support of the social context for acquiring linguistic and academic skills, are the factors responsible for any specific differences in bilingual and monolingual performance on cognitive measures.

In sum, any detailed conclusions concerning the relationship between the bilingual character of children and cognitive functioning must remain tentative. It is the case that:

1. Bilingual children have been found to score both higher and lower than monolingual children on specific and general measures of cognitive development, intelligence and school achievement.

2. "Balanced" bilinguals have outperformed monolinguals and "unbalanced" bilinguals on specific cognitive tasks.

3. Specific hypotheses relating bilingualism to cognitive and intellectual functioning have been advanced (Darcy, 1953, 1963; Cummins, 1979).

Like so much of the data in the bilingual area, these data must be perceived as tentative, and must be considered as further evidence of the need for more specific research concerning the relationship between language and cognition.

IMPLICATIONS FOR BILINGUAL EDUCATION IN EARLY CHILDHOOD

It is almost universally accepted that language and social repertoire have their origins in early childhood years. It seems that almost all the basic linguistic skills (phonology, morphology, syntax) of adult language as well as important personal and social attributes (self-concept, social identity social interaction styles) are significantly influenced during these years. Consequently, one motive for early educational intervention has been the potential removal of barriers related to the development of these important linguistic, psychological and social attributes. With respect to early childhood programs for bilinguals, it would be important to recognize the linguistic and cultural character of these children in any such effort. In 1974, the U.S. Commission on Civil Rights spoke directly to issues of language diversity and education by stressing the importance of early childhood instruction incorporating the native language of the children it serves. Put directly, the instructional staff must be able to communicate in the child's native language and the instructional curriculum must also significantly reflect the child's native language.

> When language is recognized as the means for representing thought, and as the vehicle for complex thinking, the importance of allowing children to use and develop the language they know best becomes obvious. (U.S. Commission on Civil Rights, 1974, p.44).

In the line with the above recommendation, the Administration for Children, Youth and Families, Department of Health and Human Services, has initiated a national effort to assist local Head Start centers to "implement sound developmental, bilingual-bicultural programs" (Arenas,1978). Efforts are underway in four areas: curriculum development, staff training, resource network development, and research and evaluation of curriculum development and implementation efforts. The results of the evaluation of these curriculum development efforts are not yet available, but the presence of this overall effort is indicative of the educational relavance of bilingualism to early childhood. As William (1978) has concluded, bilingual education is a natural extension of the maturing of early childhood education and will hold a prominent position in future years.

The bilingual education legislation of 1967-68 began a nationwide trend of great significance. As with many educational trends, this trend had as its impetus social and political forces. It was not based on a long history of sound empirical research related to bilingual development and bilingual education. Instead, it was a movement cognizant of a new hope for bilingual populations who had previously been ignored. It was never clear that bilingual education would provide effective educational programming, but it was clear that the "traditional" program was unsuccessful. Some 10-12 years after this initiative, it seems appropriate to at least briefly review this endeavor and its relationship to specific and related empirical research which it has directly or indirectly spawned. In doing so, we are cognizant of the investigatory paradox: empirical investigations (research) of applied/educational phenomena most often generate more "new" questions without providing substantive answers to questions they are meant to address. Research in bilingual education is no exception to this paradox.

General Implications. The seemingly most direct educationally relevant question reflects the general intent of bilingual education program: Does bilingual education benefit those children it serves to a larger degree than "traditional" educational efforts? Attempts to answer this question have resulted in a body of research literature whose authors are the first to admit that the number of variables influencing the evaluation of bilingual education are formidable. The diversity of the linguistic population, curriculum content, teaching models, program resources, quantity and quality of staffing, and degree of community support do not allow any single statement concerning the differential efficacy of bilingual instruction (as compared to traditional monolingual instruction) possible. This is not to suggest that such evaluative research is unavailable.

Lambert and Tucker (1972) provide one of the few extensive evaluation efforts related to a bilingual education effort. Recall that the program evaluated, "the St. Lambert experiment," involved the total immersion of native English-speaking children in an elementary French schooling experience. Although the formal educational program did not incorporate English as an area of curricular importance, these children continued to live in home environments almost totally dominated by English speakers. The evaluation of the program was longitudinal in nature and obtained several measures of the children's progress academically, linguistically, and intellectually, and compared these with those of children participating in monolingual English and French educational programs who were equated across several relevant indices: (1) age, (2) general intelligence, (3) socioeconomic status, and (4) family motivation for academic success.

The effects of the program were overwhelmingly positive. First, very few substantive differences between experimental (bilingual) and control (English and French) groups were reported across the multitude of measures obtained. Some differences were observed during the first one or two years, especially differences between bilingual and monolingual French groups. But, by the fifth year, no substantive differences in intellectual, academic or linguistic measures were apparent across groups. A later report by Bruck, Lambert and Tucker (1974) on these same groups, after seven years, finds the same pattern of positive results.

It seems difficult to argue with these extremely impressive results. Children who began schooling in a language foreign to their own homes were able to acquire and achieve the same educational objectives in two languages without detrimental effects and within the same temporal period as those children participating in "traditional" monolingual programs. Similar results of programs in Canada have been informally and formally (Barik and Swain, 1975) replicated. Thus, this immersion model has been adopted extensively throughout the French/English-speaking provinces of Canada.

Empirical evaluation of bilingual education efforts in this country are not as clear cut. Cohen (1974) reports one of the first detailed descriptions and evaluations of bilingual programs which involve Mexican-American children. The analysis concerns two bilingual education programs: The Redwood City Project and the Culver City Project.

Redwood City Project. Redwood City, California is a city with a substantially large population of Mexican-Americans. The bilingual education program was not an immersion model. Classes were made up of both Mexican-American and Anglo children; the languages of instruction were Spanish and English. Several academic and linguistic measures indicated the following:

a. Anglo students were comparable to other Anglo controls in measures of English language.

b. Anglo students did poorly on all Spanish measures.

c. Mexican-American students did generally as well as Mexican-American controls on English measures.

d. Mexican-American did better than their controls on Spanish measures.

e. Anglo students generally outscored Mexican-American bilingual and control students on all English measures

Culver City Project. Culver City is a city within the Los Angeles, California area. This project attempted to replicate procedurally and functionally the impressive results of the Canadian program discussed earlier. Spanish was introduced as the language of instruction in Kindergarten for a group of Anglo, native English speaking children. At first grade, Mexican-American, Spanish-speaking children were incorporated into the class. Although this project failed to incorporate appropriate control groups, the following results were reported after first grade between the bilingual immersion group and monolingual English controls:

a. There was no significant difference between the two groups on measures of English language development and reading.

b. There was no significant difference between the two groups on measures of quantitative(mathematics) development.

The results of Cohen's work are not as clear or at least not as comprehensive as those of Lambert. It especially leaves unanswered crucial questions related to the benefits of bilingual education accrued by linguistic minority children, the main target of bilingual education in this country.

A more large scale report evaluation concerning the significance of bilingual education was commissioned by and presented to the Congress of the United States. This project purported to evaluate the specific educational influence of bilingual education programming on linguistic minority children. In effect, it purported to directly answer the important question posed earlier as it relates to the thousands of bilingual children who have participated in the federally funded efforts of the last 10-12 years. In 1974, the Office of Education, Department of Health, Education and Welfare, contracted with the American Institute for Research (AIR) to conduct an evaluation study of major proportion related to the federally funded initiatives in bilingual education. A report of the study design and interim findings which were released in February of 1977 (American Institutes for Research, 1977) sent

ripples of praise and criticism throughout the educational community. The study took as its subjects a stratified sample of 38 Spanish/English bilingual education sites which were in fourth or fifth year of federal funding during the 1975-76 academic year. Second through sixth grade classrooms, inclusive of children, teachers, teacher-aides, administrators and parents were considered as providers of important empirical information in the overall evaluative design. For comparison purposes, each Title VII site was expected to nominate non-Title VII classrooms in the same locale containing students matched, as equally as possible, on ethnic background, linguistic competence and socioeconomic status for inclusion in a two-group pretest/posttest design. However, 18 of these sites were unable to identify matched comparison samples. The final evaluation sample consisted of 11,073 students, in 384 classrooms in 150 schools, in 38 separate sites. Moreover, scores on naturally normed achievement tests were used for academic expectancy comparisons.

This effort produced an abundance of information describing critical features of these federally funded projects. Following is a summary of the report:

1. Although 75% of the participants in the bilingual education program included in the study were Hispanic, approximately 60% of these students were judged by their teachers as English dominant.

2. Two-thirds of the bilingual teachers and aides reported themselves to be "native-like" Spanish/English bilinguals. Teacher experience in the program was at a minimum of two years with either a bilingual or regular teacher's credential.

3. The average cost per pupil to the bilingual program was $310 (this was in addition to normal district per-pupil costs).

4. Academic achievement measures indicated:

   a. Average Fall 1975 to Spring 1976 achievement gains in English Language Arts for Title VII Hispanic students were not superior to those on non-Title VII Hispanic students.

   b. Title VII Hispanic students who were judged to be Spanish monolingual by their teachers (for test and questionnaire administration purposes) showed no gains in English Language Arts achievement between pretest and posttest with respect to national norms.

c. Title VII white non-Hispanic student pretest and posttest means showed that the relative standing of these students on English Language Arts declined slightly between pretest and posttest in four of the five grades included in the study (grades 3,4, and 5).

d. Title VII black student pretest and posttest means showed that the relative standing of these students on English Language Arts national norms stayed the same or increased slightly in three of the six grades included in the study (grades 2,3, and 4).

e. Title VII Hispanic students in all grades (2 through 6) performed better than non-Title VII Hispanic students with respect to the acquisition of computational skills in mathmatics.

f. Relative to national norms, the achievement gains in computational mathematics of Title VII Hispanic students who were judged to be Spanish monolingual by their teachers were greater than expected for all grades in the study.

g. White non-Hispanic and black students in Title VII classrooms demonstrated positive gains relative to national norms in computational skills in mathematics.

h. Posttest Spanish Language Arts achievement did exceed that measured by the pretest for Title VII Hispanic students but lack of suitable comparison groups of students did not permit these gains to be uniquely associated with participation in a Title VII project.

i. In regard to gains in English reading, English vocabulary, and mathematics, several Title VII and non-Title VII classrooms were found to be producing unusually effective results when compared to the rest of the sample. Thus, while educational procedures found in some Title VII classrooms resulted in such unusual gains, these gains were also found in some non-Title VII classrooms.

j. Several Title VII classrooms had students who, compared to the rest of the sample, made unusual gains in Spanish reading, vocabulary, and reading comprehension.

k. No clear trend related to the relative proportion of Hispanic and non-Hispanic students in the classrooms with unusually effective or usually ineffective English reading or mathmatics performance was evident. The percent of Hispanic students in classrooms unusually effective in English reading and English vocabulary ranged from 44% to 96%. The percent of Hispanic students in the classrooms unusually ineffective in these academic areas ranged from 30% to 100%. Essentially the same findings were evident with regard to mathmatics performance and Spanish reading performance. (Evaluation of the Impact of ESEA Title VII Spanish/English Bilingual Education Program, Volume 1 Feb. 1977, pp.VIII-3 to VIII-5.)

Any project of such magnitude that attempts to empirically evaluate the effect of a particular educational intervention is clearly in the best interest of the children it serves. However, methodological criticism, secondary analyses of the data, and questions concerning the utility of the statistical analyses of these data have been raised. (Hearing before the Subcommittee on Elementary, Secondary and Vocational Education, 1977; IDRA, 1977; O,Malley, 1977). Moreover, issues about the utility of conducting large scale samplings in evaluation of bilingual education programs have been questioned. The major concerns addressed by IDRA are listed below:

1. Language classifications were done by teachers in spite of the fact that one-half of the teachers did not speak any language other than English and that research indicates teacher judgement to be an unreliable indicator of student language characteristics.

2. Only students who spoke no English whatsoever were classified as "Limited English Speaking."

3. District Title VII personnel were allowed to nominate groups to be used for comparisons from classrooms outside of their own. Difference between school districts, such as organizations, teaching methodologies, teacher training, teacher qualifications and competence, and varying financial resources were not controlled for.

4. About one-third of the non-Title VII teachers and aides were involved in a bilingual program. In view of the AIR data, this suggests that perhaps bilingual program children do better in state or locally funded programs than in Title VII programs.

5. Eighteen out of thirty-seven projects were unable to find a comparison site.

6. Measures of English reading ability were obtained by the use of an English language achievement test given to Spanish monolinguals and were "just learning to read and write in English."

7. AIR used total Reading scores although a large number of these Spanish monolinguals did not take the reading subtests. Consequently, the overall reading scores were lowered for this entire sample.

8. Instructional time, content and teaching methodologies varied considerably and this variation was not controlled for.

9. Only 26% of the teachers reported having a bilingual teaching credential, which is the minimum criteria for adequate teaching determined by many states.

10. IDRA analyses of Title VII bilingual inservice training revealed that, in the five year span prior to the study, 6.6% of the teachers receive no training; and possibly as many as 46% of the teachers received less than 3 days of training in the implementation of this new different instructional methodology.

11. 49.6% of the Title VII bilingual program teachers admitted to not being proficient in the other language.

12. Cost analyses per se were not performed. Instead, subjective responses were collected from "cognizant local personnel," ignoring developmental vs. operational costs, first year vs. continuation program costs, etc. (The AIR evaluation of the impact of Title VII Spanish/English bilingual education programs: An IDRA response, June, 1977, pp. ii, iii, iv.)

Other concerns raised in the Congressional Hearings (1977) and by O'Malley (1979) focus on evidence in the AIR study which suggests that the comparison groups were not equivalent at the outset, and probably less to (due to differential attrition) at the end of the evaluation.

Unfortunately, this evaluation fails to resolve the critical question: Is bilingual education an intervention of benefit to language minority children? The failure of the evaluation to control for qualitative aspects of bilingual and traditional program efforts is a weakness which

precludes clear, decisive answers to this question. Instead, the evaluation poses many more questions than it answers: Were projects administered poorly? To what extent were teachers "qualified" to implement and support program initiatives? How was the diversity of curriculum models so prevalent in bilingual education controlled for? How was the adequacy of curricular implementation controlled in such comparison? Why so much variability in academic results across the program studied?

Therefore, although this major evaluation effort has attempted a comprehensive and critical look at bilingual education in general, it in no way provides the answers to the specific questions of critical concern. Most disappointing, it failed to assess the influence of bilingual education in early childhood (ages 2-6), a crucial time for the acquisition of linguistic and cognitive repertories so significant in later educational achievement.

To conclude at this time that bilingual education programs do not differ significantly from "traditional" English language education programming in achieving academic objectives for linguistic minority children would be a gross error. In fact, attempting to answer such a question seems educationally inappropriate. Given the role of language in the education of these children, the crucial question is, "What form of bilingual instruction will significantly influence the education of the bilingual or potentially bilingual student?"

A recent report by the Carnegie Corporation of New York (Pifer, 1980) assessing the relationship of bilingual instructional strategies specific to Hispanic populations of the United States concluded:

> Whatever happens, the fact remains that at least 1.75 million Hispanic children have limited proficiency in English and need some form of special language assistance before they can fully participate in the educational system. Since neither quick submersion in regular classes nor ESL alone has worked well with children from low income, non-English speaking backgrounds, teaching such youngsters in their first language while they are learning English would appear a sensible alternative. (Pifer, 1980, pp. 14-15.)

In a recent review of selected bilingual education program data, Troike (1981) readdresses program evaluation concerns and the results of more recent bilingual education program evaluations. Specifically, he reports positive academic achievement results for bilingual education students compared to similar "regular" program students in several U.S. contexts which varied across language of instruction (Spanish/English, French/English, Chinese/English, and

Navajo/English). A more recent (Sandoval-Martinez, 1982) evaluation of bilingual Headstart curriculum effects has indicated that bilingual instruction was more effective than regular preschool instruction on measures which reflected English language development, concept development and perceptual motor development. Unfortunately, even such positive results are subject to the same criticism of impreciseness which has underscored those evaluations which purport to evidence negative results (AIR, 1977).

Not until ambiguous teacher, administrative and curricular variables are sufficiently defined and subjected to analysis will the answer to this question be possible. What seems clear-cut in the evaluation of over a decade of bilingual education is that bilingual education is here to stay. Its future is not linked to its comparative evaluation to traditional programming. Instead, evaluations of bilingual programs must identify the specific character of the programs which succeed, acknowledging the diversity of language, culture, curriculum, personnel and community support which specifically define any bilingual education effort. Such evaluation enterprises must go beyond a pre-post assessment mentality. They must assess qualitative aspects of programmatic and community features using ethnographic and other socio-cultural observational techniques. In essence, the relationship between the implementation of experimental demonstrations and evaluation efforts in bilingual education must be closely managed and monitored to ensure that independent variables are well defined and functioning within these definitional parameters before the factorially defined dependent variables (Winer, 1971) of process/implementation and impact are constructed and introduced. The intended efforts of bilingual program demonstrations (i.e., replicability) and their evaluation (empirical assessment and generalizability) will not be reached in elementary and other educational programs until this goal is achieved.

SPECIFIC IMPLICATIONS

Teaching/Learning Strategies. It is always difficult to extract from a body of research literature specific implications for an applied teaching technology. The character of controlled research environments, the uncharacteristic control of intervening variables, and the starchiness of independent variable intervention often precludes generalization of findings to "real" classrooms. Yet, within these study environments of controlled experimentation and observation, information potentially of relevance to bilingual classrooms has emerged. McLaughlin's (1978) review of such research led him to conclude that many misconceptions are prevalent with respect to second language and bilingual acquisition in early childhood. Among them:

1. The young child acquires a language more quickly and easily than an adult because the child is biologically programmed to acquire language, whereas the adult is not.

2. The younger the child, the more skilled he is in acquiring a second language.

3. Second language acquisition is a qualitatively different process than first language acquisition.

4. Interference between first and second language is an inevitable and uniquitous part of second language acquisition.

5. There is a single method of second language instruction that is most effective with all children.

6. The experience of bilingualism negatively (or positively) affects the child's intellectual development, language skills, educational attainment, emotional adjusted and/or cognitive functioning. (McLaughlin, 1978, pp. 197-105.)

McLaughlin is not admitting total ignorance in concluding that the above propositions are false. Instead, he is following the strategy of any "good" scientist: propositions which are extracted from empirical observation and experimentation are to be handled with extreme caution and doubt. It is possible that some or all of the above propositions are true, but to claim their truth at a time when supportive evidence is unavailable, is unwarranted and clearly not in the best interest of future research and the applied technology of education.

Is it possible to answer any bilingual education concerns? With the above issue of caution in mind, there are some questions specifically related to bilingual education and bilingual research which deserve discussion.

Will bilingual education efforts in early childhood negatively affect children's linguistic and cognitive development? Given the data discussed previously, it seems clear that exposure to two language systems and subsequent proficiency in these two languages does not retard linguistic or cognitive development. That is, children who were operating at complex levels in Spanish were not "retarded" in English as compared to other "matched" monolingual English peers. Therefore, a bilingual experience in early childhood alone does not necessarily retard linguistic or cognitive development. Unfortunately, important questions still remain:

1. How are differences in the qualitative nature of the bilingual experience related to linguistic and cognitive development?

2. How are cognitive process variables related to bilingual development?

Do bilingual education efforts in early childhood positively affect linguistic and cognitive development? Although there is evidence for the lack of negative effects of bilingual acquistion on general linguistic development, there is no evidence of advanced linguistic development for bilinguals when compared to "matched" monolinguals. That is, there is no report of bilingual subjects' increased proficiency in either language as compared to native monolingual speakers of either language, Cognitively, there is evidence that bilinguals score significantly higher on several cognitive measures than "matched" monolingual peers. These measures tend to be those reflecting the ability to consider properties of the environment in a more "flexible" manner: to construct more general semantic categories than monolingual peers. Critical questions remain, however:

1. Are these advantages related to bilingualism or other (potentially cultural) variables associated with bilingualism?

2. Are these advantages related to proficiency levels of bilingualism?

3. Are these advantages related to the specific languages involved and specific cognitive measures (tasks)?

Should bilingual education efforts be immersion, transition, or maintenance? It seems evident from the foregoing review that many critical issues related to bilingual development and the education of bilingual students remain unresolved. Contradictory research findings have emerged regarding the qualitative nature of bilingual development, although this form of research is not new. Moreover, cognitive correlates of bilingualism have only recently begun to receive systematic attention at the empirical level. Formal evaluations of bilingual instruction models have proven to be a difficult and often disappoining enterprise. Only the Canadian bilingual French/English programs have provided thorough and comprehensive evaluation information. Unfortunately, due to critical ethnolinguistic, socio-economic and socio-political differences regarding the context of the Canadian programs, the results of those evaluations are impossible to relate to ongoing bilingual education programs for minority ethnolinguistic groups of the United States.

Besides reemphasizing the need for more and better basic and applied research in the area of bilingualism and bilingual instruction, what recommendations regarding instructional procedures for the education for bilingual students might be made? First, the previous discussion of

research has emphasized the interaction of linguistic, cognitive, and social domains. That is, bilingual children must be perceived as developing linguistic, social and cognitive attributes interdependently. Therefore, a bilingual child brings to the schooling environment (1) two linguistic systems, (2) the history of immersion within a complex social milieu utilizing those two systems (3) at a time when cognitive and academic growth is most influenced by social milieu. It seems reasonable to suggest that it is these differential social mileus which have produced the discrepancies in research outcomes discussed previously. And, since the classroom is a systematic extension of these social/interaction patterns, it will either serve to enhance or impede continued linguistic, social and cognitive development.

How might the classroom serve to enhance that development? Linguistic ability is the first key variable, although it alone is not independent importance. Recall that bilinguals possess diverse linguistic functioning repertoires: (1) The child may be more proficient in L_1 and L_2 (the Dominant L_1 Child); (2) The child may be equally proficient in L_1 than L_2 (the Balanced Bilingual Child). Proficient here is meant to take into consideration the broader definition of communicative competence rather than standard "morphological and syntactic" competence. If effective instruction is to take place in the classrooms, communication between student and teacher must be maximized. Most directly, this mandates instruction in the child's dominant language. Where English is not the student's dominant language, academic instruction should not reflect an English emphasis.

Should English be taught at all in this circumstance? In almost all regions of the country, English "pervades" the child's natural social and educational environment. The physical presence and the psychological weight of such a presence "impels" English development. Therefore, although some English as a Second Language (ESL) instruction may be beneficial, it is unlikely for a child immersed in such an English environment not to become proficient in this language. Of course, this acquisition will take time. By moving forward with academic instruction in the child's dominant language, however, on academic/cognitive retardation is likely to result.

The balanced bilingual presents a different educational challenge. This student is exceptional and should be considered gifted. Therefore, instruction for this child should reflect this exceptionality. Instruction should emphasize both language wherever possible. Ten years ago, bilingual instruction or balanced bilinguals would have been almost impossible. With the development of bilingual materials and the training of bilingual personnel within the last decade, it is not only possible and educationally desirable to maintain and further extend the child's bilingual competency.

For the unbalanced, English dominant student, instruction should reflect this English proficiency. This is not to suggest that bilingual instruction for these students should be unavailable. These children bring with them their ethnolinguistic status to the English curriculum. It is important psychologically not to negate this ethnolinguistic consciousness. Bilingual instruction should emphasize the inseparable nature of culture and language, with some systematic L_2-as-a-second-language instruction. The goal of this form of instruction model would not be to produce proficient bilinguals, but instead, to explore culturally and linguistically the ethnolinguistic heritage of the student in order to maximize the educational influence of the classroom.

Recall that the above commentary regarding classroom policy is based on scarcity of sound empirical research. But, it is consistent with the present knowledge base regarding multilingual acquisition. The commentary is made in regard to early schooling years, at time of critical importance for establishing effective instructional programming. This is expecially true for children from ethnolinguistic minority groups where educational history has been riddled with neglect and failure. Bilingual instruction in its various forms holds for these children a promise for educational parity.

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